Water Update

City of Santa Fe

Spring Quarter 2005

Sangre de Cristo Water Division

Water Update

City of Santa Fe
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Contributing Divisions and Departments

- Water Budget Administrative Office
- ITT Department
- Wastewater Division
- Planning & Land Use Department
- Utility Billing Division, Finance Department

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Comments and Questions

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Contents

INTRODUCTION

As water resources in Northern New Mexico are finite and the region's population continues to grow, an improved understanding of water-related issues is imperative. As one of the largest municipal water suppliers in the state, the City of Santa Fe delivers billions of gallons of water each year to citizens in the Santa Fe urban area. This report is meant to be numerical, relying on tables, graphs, and raw data to convey information. Furthermore, this report is a compilation and summary of useful information about the City's water utility including water supply, water production, deliveries, conservation efforts, potable and wastewater resources, and utility data. This report fulfills various reporting requirements (e. g. City of Santa Fe Statutes 14-8.13, Annual Water Budget; City of Santa Fe Statutes 25-2 Water Conservation), previously released as separate components. While this report is in no way comprehensive, our intent is to provide updated information on most aspects of the City's Water in a regular, timely manner.

The data presented within this report is for the quarterly period comprising **April 2005 through June 2005.** Every effort has been made to ensure quality analysis and accuracy and to provide a general picture of the assesment of the City of Santa Fe's Water Divison.

Mclure Reservoir, April 6 2005

QUARTERLY UPDATES

- Past upgrades to the City's Water Treatment Plant (WTP), the completion of repairs to clarifiers, and good raw water quality allow the WTP to currently treat an average of 8 million gallons per day (mgd).

- Design for the Purge Water Reuse Project (funded by the Governors Water Innovation Fund) is 90% complete. This project will retrofit 10 of the City's groundwater wells with purged water capture systems. Bidding for the project will open in October and construction will take place November 2005- May 2006.

- Construction on the Rancho Siringo Road and Siringo Lane Water Main Extension is complete.

- Bidding for the Dempsey Pump Station Rehabilitation project opened on September 7. This project will install an underground pump station to replace the pump station currently located in the Old Filter Plant. Construction is expected to begin in mid-October and continue through February 2006.

- Construction of the $1 million Water Main Replacement project is 90% complete.

- The Draft Environmental Impact Statement (EIS) for the Buckman Direct Diversion (BDD) Project was published in May 2005, and the Final EIS and Record of Decision are expected in early 2006. A pilot study of the project is currently underway to evaluate Rio Grande water quality and to help identify the most appropriate water treatment process to be included in the design of the project's water treatment plant. Contract negotiations between the owners and the Owner's Consultant are on-going and are expected to conclude in the fall of 2005. The BDD Board held its first meeting in August of 2005, and set its meeting schedule for the remainder of the year.

- The City's Long-Range Water Supply Program is moving forward. The Santa Fe Water MAP (management and planning) model (a system simulation model) was demonstrated to the City Public Utilities Committee in May and at a public meeting in July. This model will assist the City in planning for both near- and long-term water needs. The Long-Range Plan will be ready for public review in early 2006.

- On July 1, 2005 the gross receipts tax increment went into effect. The tax will be used to fund City water projects, including the Buckman Direct Diversion and infrastructure upgrades.

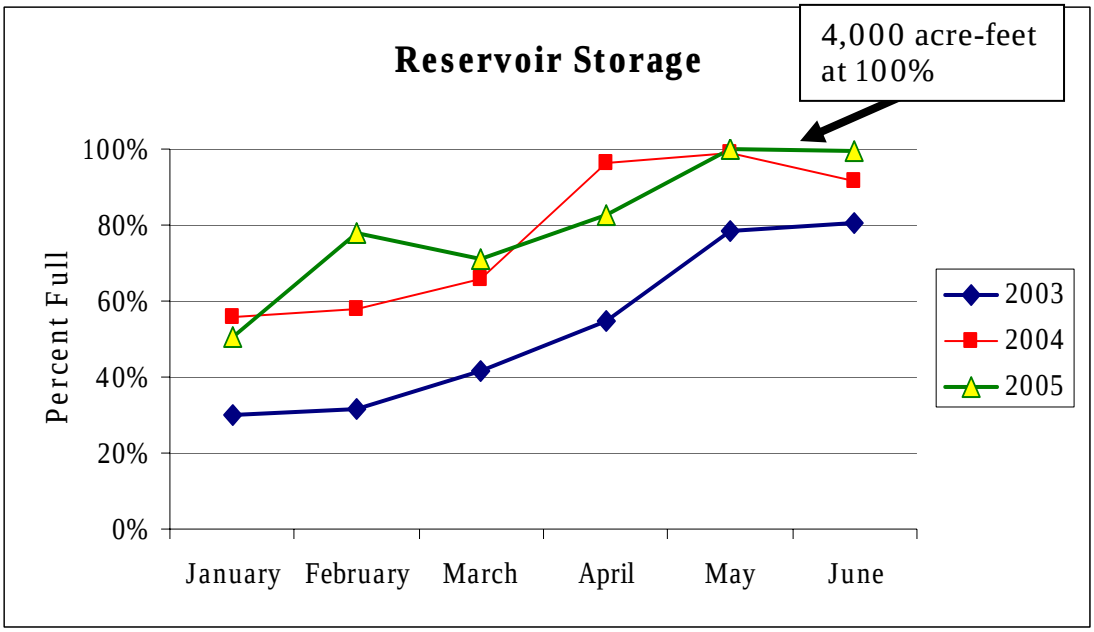
- By the end of June 2005, approximately 8000 acre-feet of water had been released down the Santa Fe River this year.

- The Water Conservation Office began the "Residential Budget-Based Water Allotment Demonstration Program" March 1st, 2005. Seventy-nine families are participating in the program. In the first 4 months of the program, overall water use for these families is down 16%.

Supply

RESERVOIRS

In May of 2005, Santa Fe reservoirs reached 100% of storage capacity (nearly 4,000 acre-feet) as a result of the heavy precipitation in early 2005. With the thick snow pack of spring, runoff was significant compared with previous years, and so in early March the Water Division staff began controlled releases to avoid reservoir overflow.

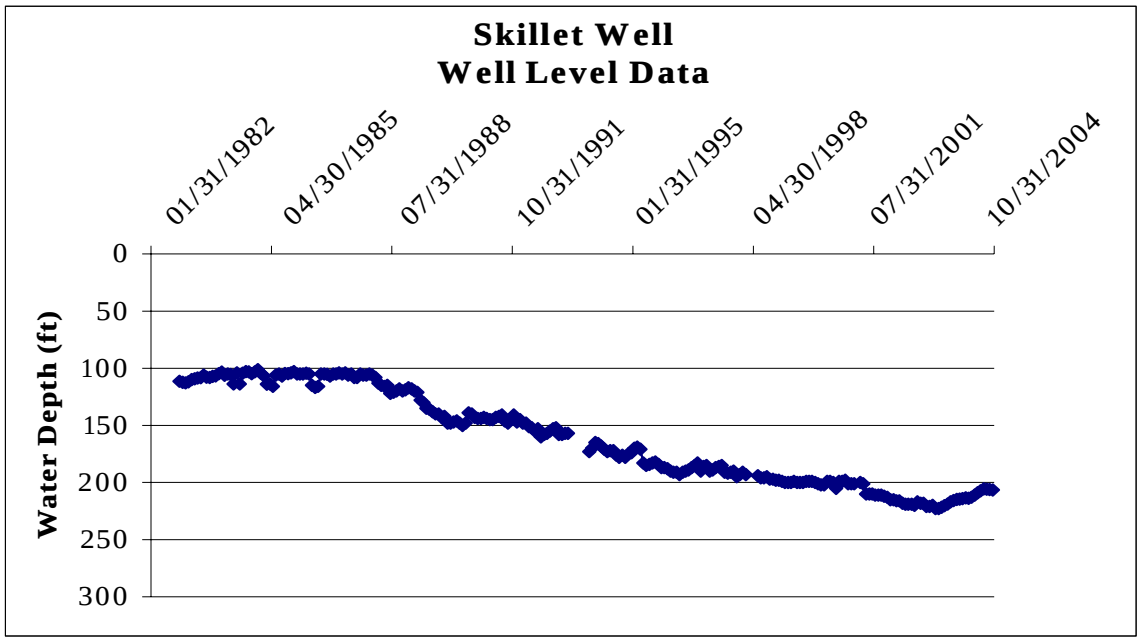


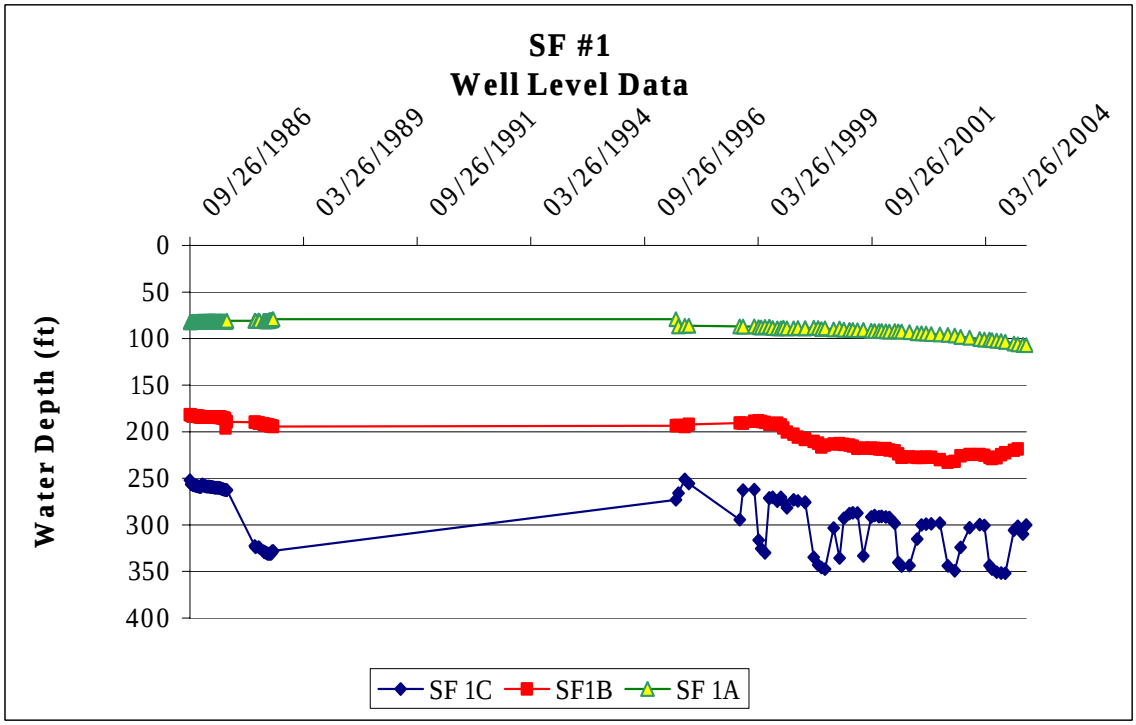
GROUNDWATER LEVELS

Historically, pumping from wells in the Santa Fe area has accounted for approximately 60% of the municipal water supply. Groundwater is a reliable, if not overused, method of securing water for Santa Fe, but may not be sustainable in the long run if not augmented with surface water when possible. Consequently, it is in the interest of the City to closely monitor the levels of the aquifer as best as we can.

Therefore, keeping track of the effects of groundwater pumping is increasingly important as demand increases. Below is the well depth data for two wells representative of the City well field and the Buckman well field. This data gives us a general picture of the water level in these wells over time. The Skillet well is near the Buckman well field

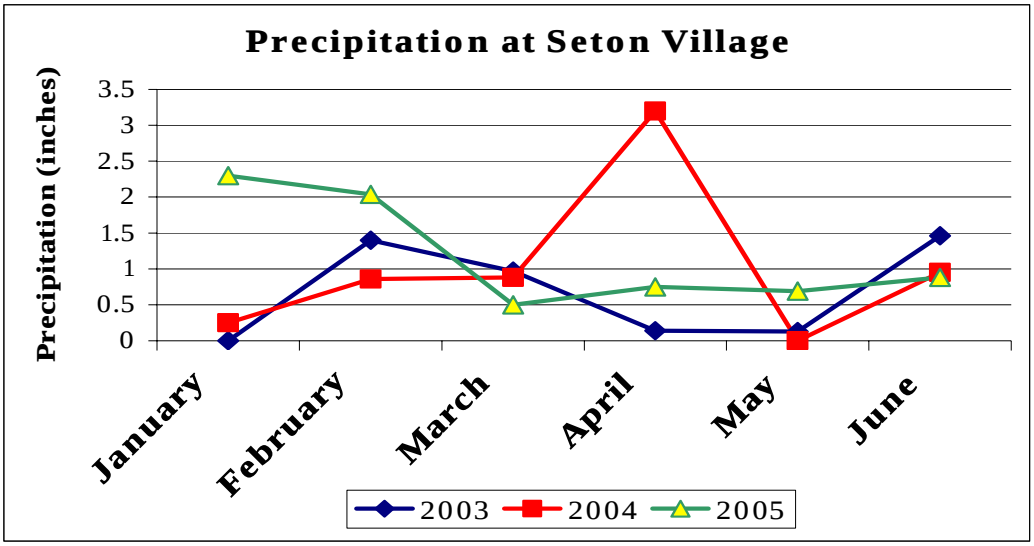
and has been monitored since October 1982. SF #1 is in the City well field and has been monitored since September 1986. This well records water levels in three different nexted wells, so we can see the response to pumping at various depths in the aquifer.



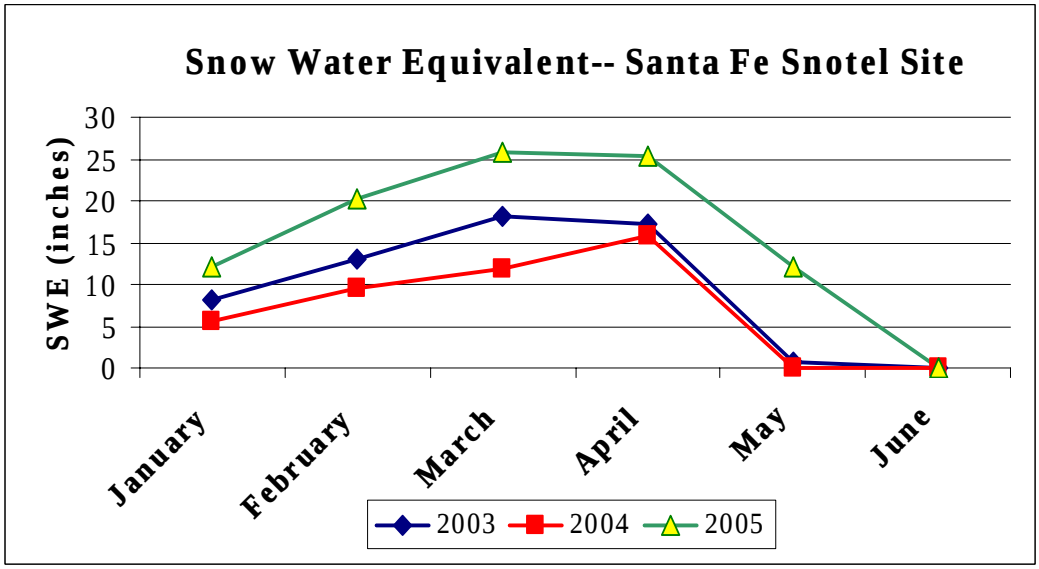


PRECIPITATION

At the National Weather Service rain gage in Seton Village (approximately 4.5 miles from the Santa Fe Plaza), **2.32** inches of precipitation was recorded in the 2nd quarter of 2005. In comparison, 4.84 inches were recorded for the 1st quarter of this year.



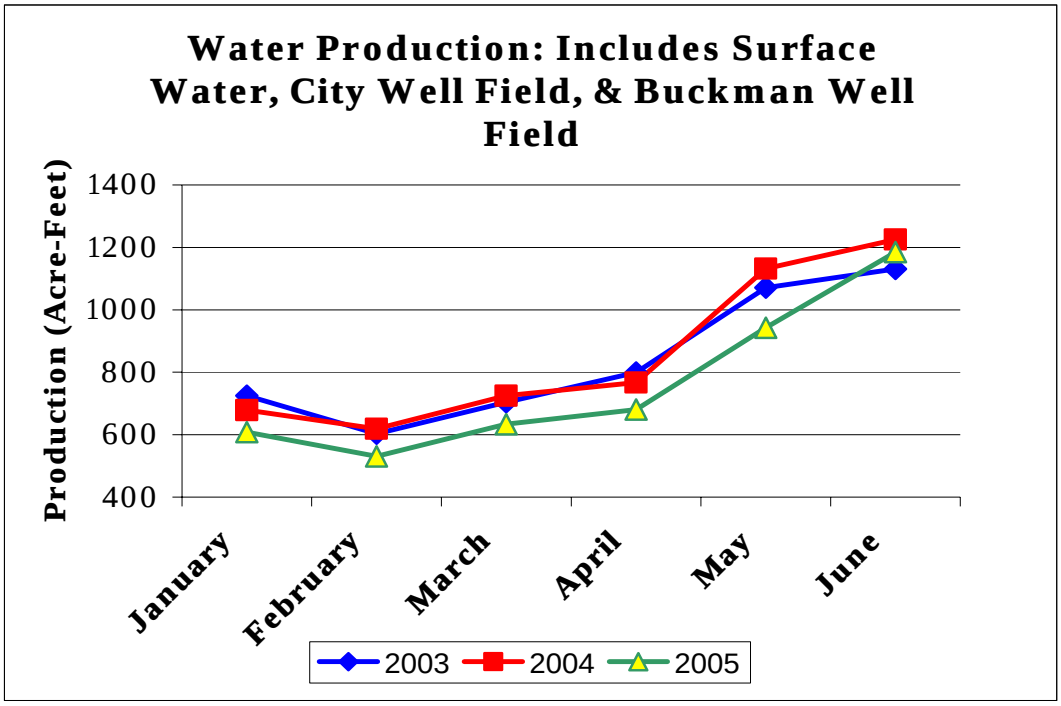
The Santa Fe Snotel snow gage, located at an elevation of 11,445 feet, reported the last snowmelt of the season on June 15, almost a full month later than average. The snow-to-water equivalent of the snow pack, important for planning purposes and predicting snowmelt, was still 12.2 inches on May 31st, 2005.

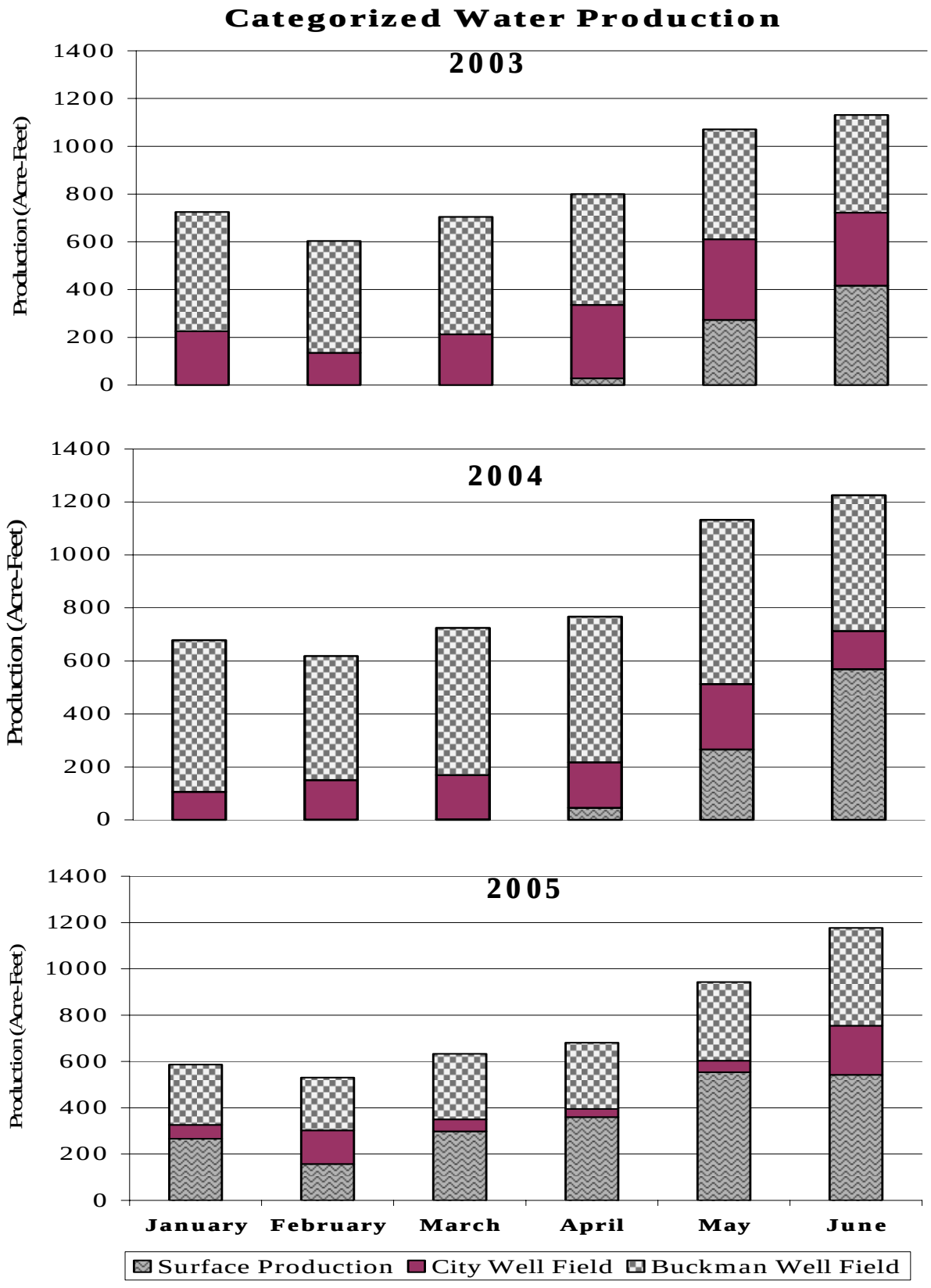


Demand

PRODUCTION

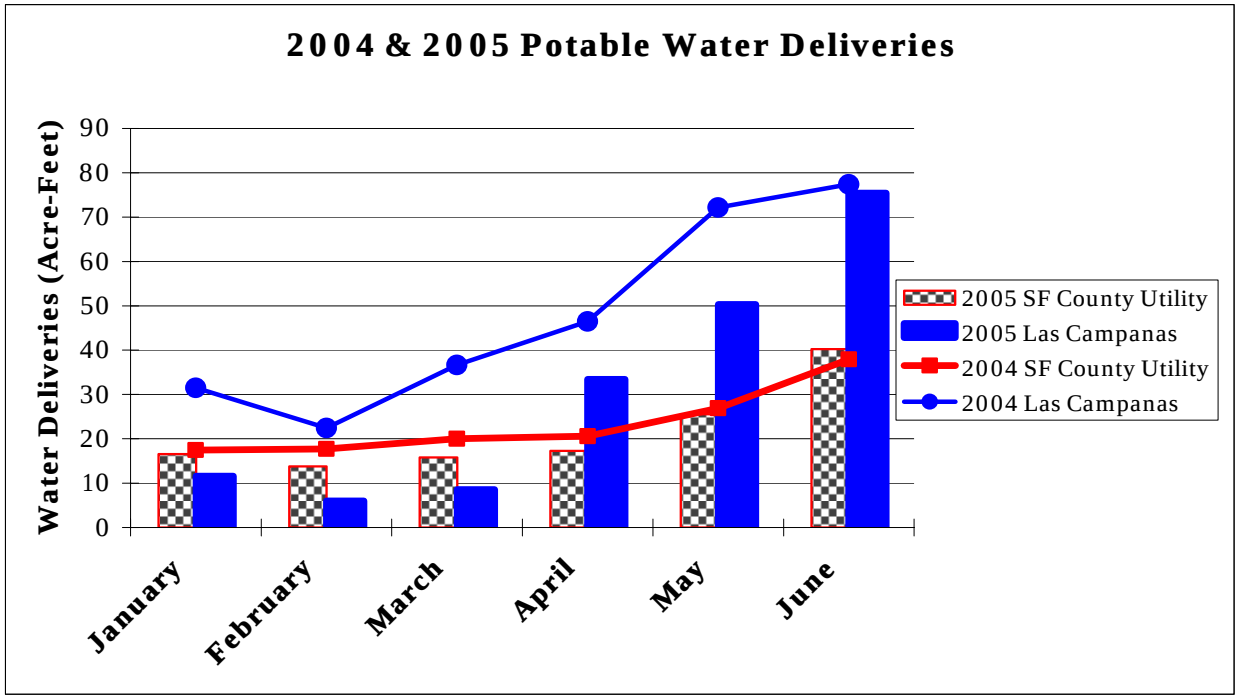
The first two quarters of 2005 indicate the total amount of water production is lower than in the previous two years. Water production includes surface water from the Santa Fe River, the City well field, and the Buckman well field.




Categorized Water Production
2003
2004
2005
Production (Acre-Feet)
1400
1200
1000
800
600
400
200
0
January
February
March
April
May
June
Surface Production
City Well Field
Buckman Well Field

WATER DELIVERIES

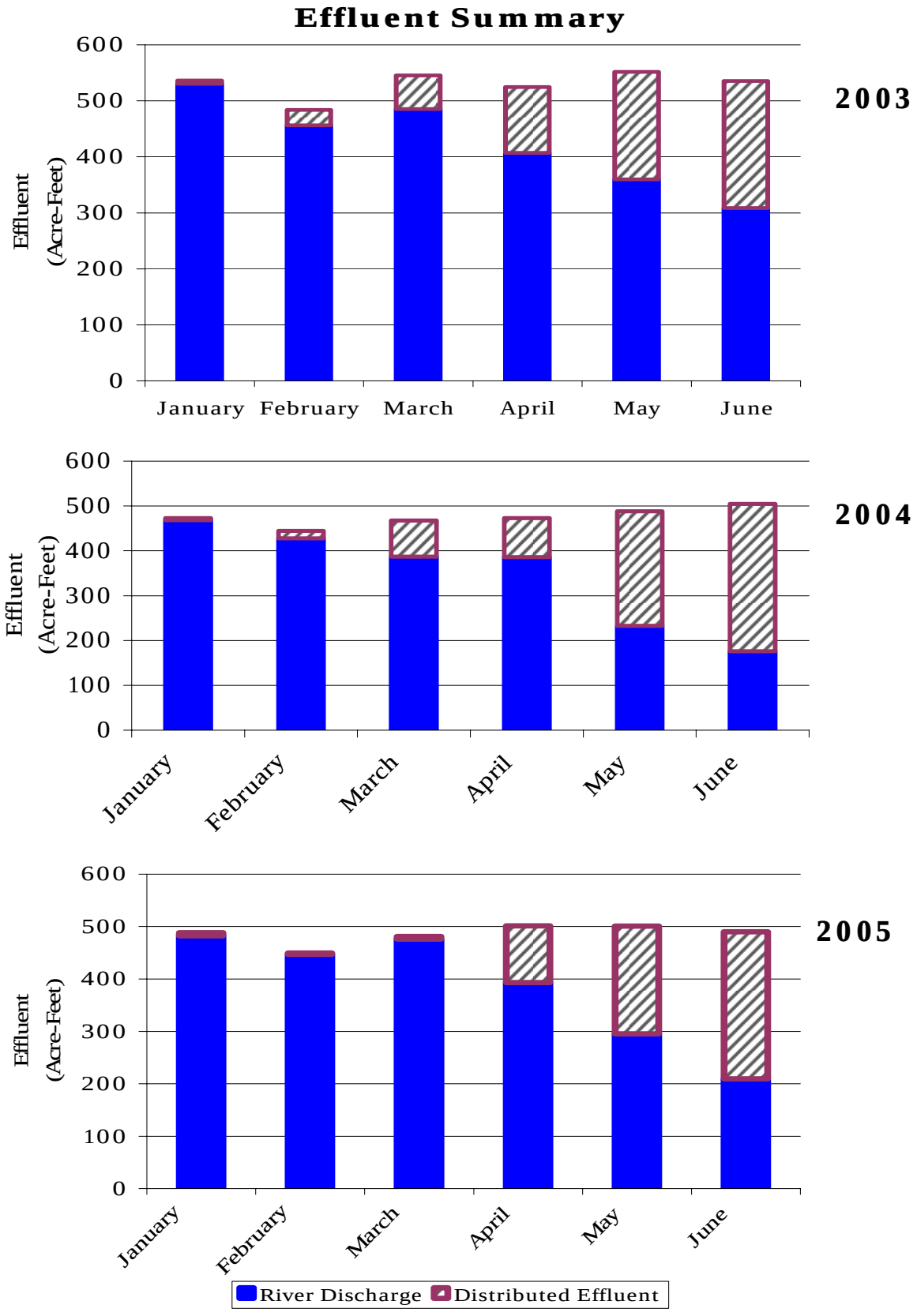
The City has wholesale agreements to deliver potable water to both Las Campanas and Santa Fe County Utility. Las Campanas may receive up to 650 AFY of City water for its domestic and commercial needs, while its golf courses may receive a maximum of 322 AFY of potable water. The County has an allocation of up to 875 AFY of City water until the Buckman Direct Diversion (BDD) commences operation. Upon implementation of the BDD, the county will receive 500 AFY.



The overall decline in potable water deliveries to Las Campanas from 2004 are due in part because Las Campanas is now receiving large amounts of treated effluent to irrigate its golf courses. Previously, the development had relied on potable water resources for this purpose.

EFFLUENT DELIVERIES

The City has agreements to distribute treated wastewater effluent to various locations in the Santa Fe area, including Las Campanas, the City's Municipal Recreation Complex, the Santa Fe Country Club, the U.S. Forest Service, the Santa Fe Horse Park, and The Downs of Santa Fe Race Track. The treated effluent has been used for irrigation as a substitute to potable water, thus offsetting demands on potable water supplies.


Effluent Summary
2003
2004
2005
Effluent (Acre-Feet)
600
500
400
300
200
100
0
January
February
March
April
May
June
River Discharge
Distributed Effluent

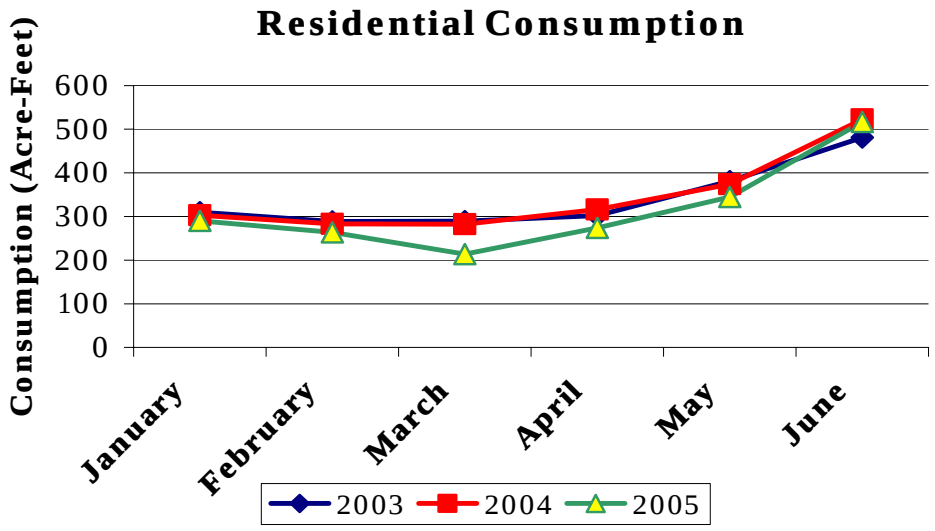
CONSUMPTION OF RESIDENTIAL AND COMMERCIAL ACCOUNTS

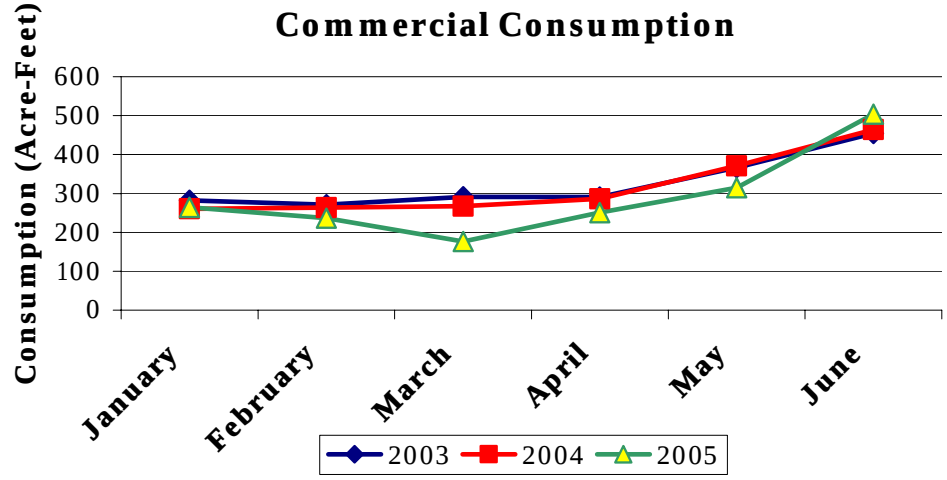
As of July 1, the City had a total of 29,929 water utility accounts. Over 85 percent of these accounts were residential.

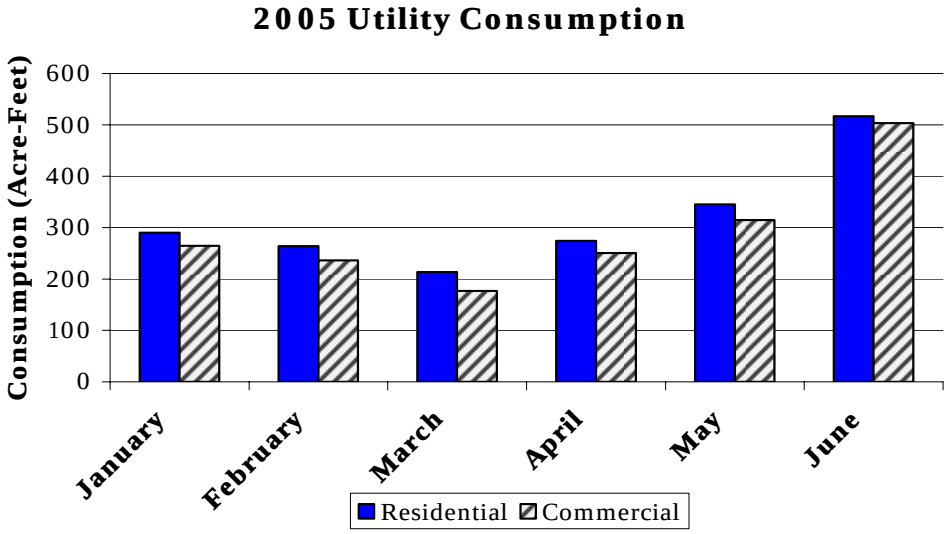
	Total Water Utility Accounts
Residential	25,874
Commercial	4,055
Total Accounts	**29,929**

Typically, residential water consumption is slightly higher than commercial consumption. However, the line separating commercial and residential is blurred by the fact that some residential users may be classified as commercial. Apartment complexes, for example, are often classified as large or small commercial rather than residential. The City is currently revising the billing system to include these entities as "multi-family" residential. It should be noted that municipal consumption (parks and recreation irrigation and street median irrigation) has not been taken into account in this analysis. However, this category, on average, utilizes less than 1 percent of City water consumption.

Installation of "Fireflys" into water meters has progressed over the last few months. Fireflys allow the City to determine if there is a continuous or intermittent leak on a property. Fireflys also assist the City in determining if a meter is sized correctly or is too large or small for the application in which it is being used. In addition, these allow City employees to read water meters remotely.


Residential Consumption
Consumption (Acre-Feet)
600
500
400
300
200
100
0
January
February
March
April
May
June
2003
2004
2005

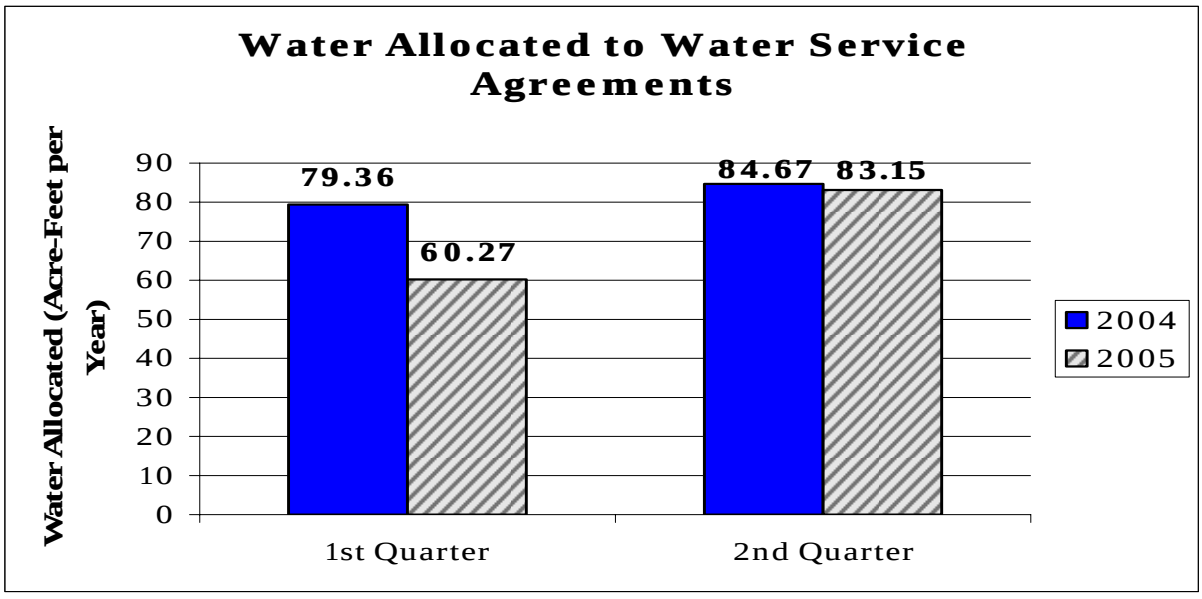

Commercial Consumption
Consumption (Acre-Feet)
600
500
400
300
200
100
0
January
February
March
April
May
June
2003
2004
2005


2005 Utility Consumption
Consumption (Acre-Feet)
600
500
400
300
200
100
0
January
February
March
April
May
June
Residential
Commercial

WATER SERVICE AGREEMENTS

Every person seeking a new water service permit with the City must fill out an application. Upon review, the applicant may be given either an **Agreement for Metered Service (AMS)** or an **Agreement to Construct and Dedicate (ACD**). The applicant must specify the type of construction on the application, and then staff makes an estimate on the amount of water that will be used by such a project. For example, a single family dwelling unit, with a lot size of less that 6,000 square feet, will use an estimated 0.2 AFY. These estimates were compiled from the report "Water Use in Santa Fe" (February 2001), which was produced by the Planning Division.

Infrastructure Contracts, 2005				
	1st Quarter		2nd Quarter	
	Units	Demand (AFY)	Units	Demand (AFY)
Single Family Residence	93	26.60	168	35.37
Guesthouse	66	7.92	2	0.24
Apartment/Condominium	47	9.87	43	9.03
Senior Complex	0	0.00	246	34.44
Total Residential	**206**	**44.39**	**459**	**79.08**
Office (Non-medical)	0	0.00	11,021	0.67
Office (Medical)	52,699	7.90	0	0.00
Retail Store	0	0.00	15,042	0.90
Grocery Store	9,259	1.08	0	0.00
Restaurant (Limited Service)	0	0.00	1,500	2.50
Lodging (Motel-limited service)	46	6.90	0	0.00
Total Commercial:	**62,004**	**15.88**	**27,563**	**4.07**
Total Allocation:		**60.27**		**83.15**

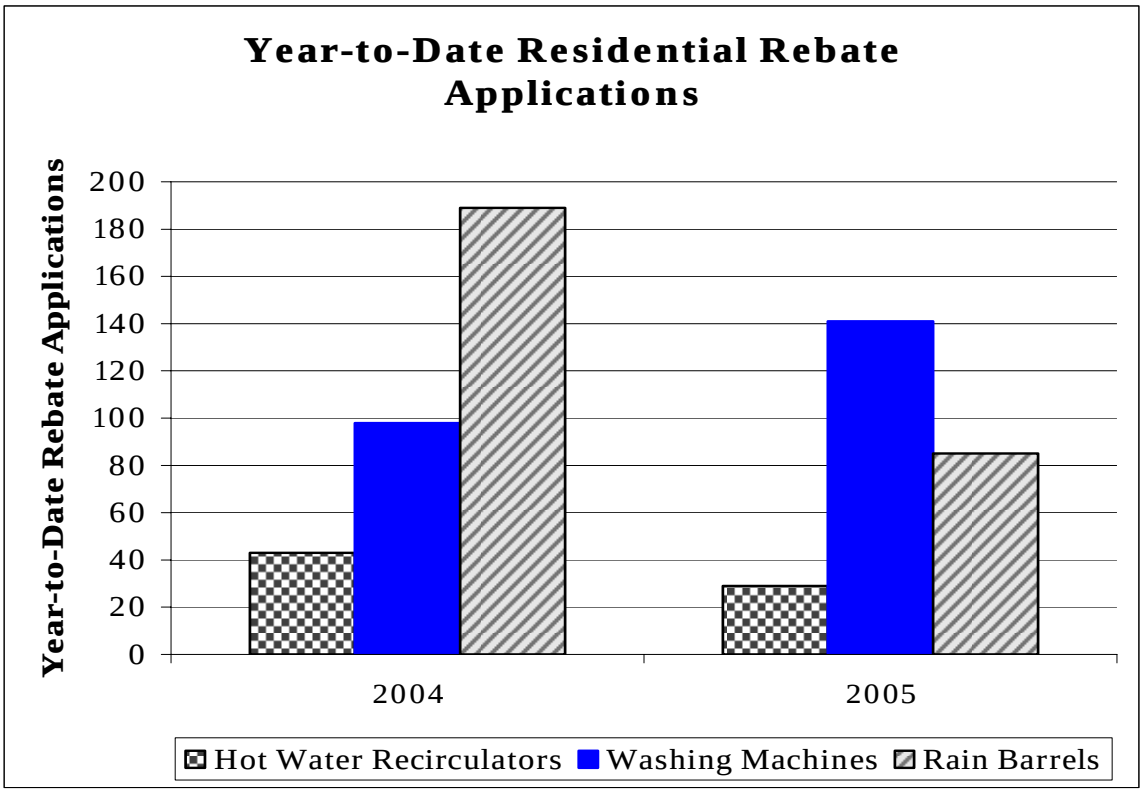


CONSERVATION ACCOMPLISHMENTS

The City has a Water Conservation program that includes incentive rebates for water-saving appliances and rain barrels. Currently, the City offers rebates for customers who purchase hot water recirculators, efficient washing machines, and rainwater collection barrels.

Residential Rebate Programs				
	1st Quarter	2nd Quarter	Year-to-Date Total Rebates	Year-to-Date Savings (AF)
	2004			
Hot Water Recirculators[1]	21	22	43	**0.92**
Washing Machines[2]	25	73	98	**1.56**
Rain Barrels[3]	28	161	189	**n/a**
	2005			
Hot Water Recirculators[1]	15	14	29	**0.62**
Washing Machines[2]	62	79	141	**2.25**
Rain Barrels[3]	37	48	85	**n/a**

[1] Assuming each installed device saves 7,000 gallons/year.
[2] Assuming a 20 gallon/load savings, 5 loads/week. Assumption based on a 15 gallon/person/day laundry use by AWWA.
[3] It is difficult to make an overall assumption of how much water a rain barrel can save. A 1,000 square-foot roof can deliver 150 gallons of water in a quarter-inch rainstorm. The amount of water saved from using rain barrels will vary based on application.



WATER BUDGET PROGRAM (TOILET RETROFITS)

The toilet retrofit program, adopted in 2002 as part of Annual Water Budget Ordinance, offsets new water demands on the City water utility. The program requires that new building projects replace the equivalent of their calculated demand by retrofitting high-flush toilets with low-flush toilets. The goal of this program is for there to be no new demand on the water supply system. For this quarter the Water Budget Administrative Office (WBAO) has registered 326 applicants. A total of 162 applicants are subject to retrofit because these projects resulted in an increase of water demand that must be offset. Based on the current Water Budget administrative guidelines, the others were not required to retrofit.

Approximately 108 new residential building permits and 54 new commercial building permits have been issued so far in 2005.

LOW-PRICED DWELLING UNITS CREDIT POOL

In 2002, the Water Conservation Section of the Water Division replaced approximately 8,000 residential toilets through the City's Water Wise Program. This resulted in approximately 200 AF of water savings, which was dedicated to a 'low-priced dwelling unit credit pool'. As per the Water Budget Office administrative guidelines, qualifying low-priced dwelling unit projects can be exempted from the toilet retrofit requirement and instead draw from this pool.

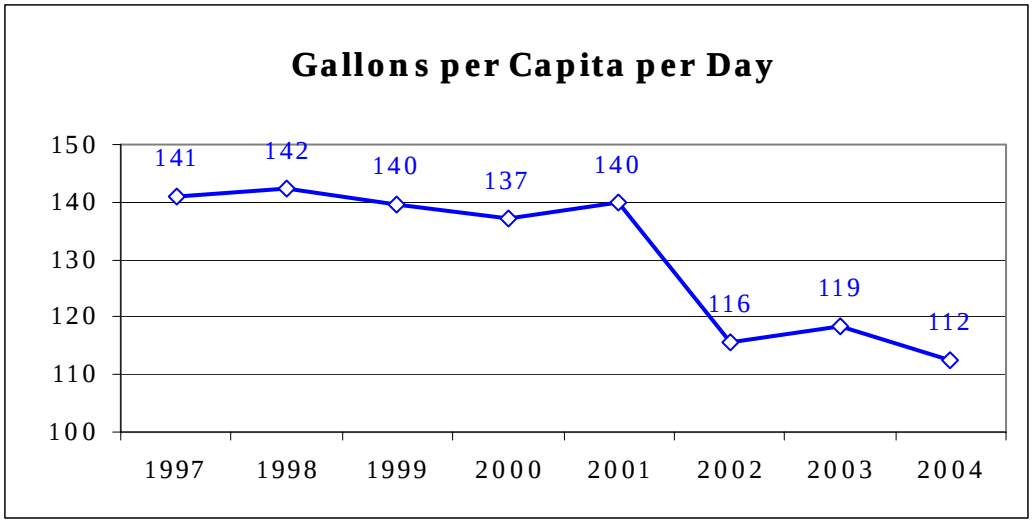
During the second quarter, there were **40 applications** that qualified for low-priced dwelling unit offset credits, reducing the pool to approximately **152 AF**. This figure, however, does not include any low-priced dwelling unit projects approved by the governing body that have not yet begun the building permitting process and therefore have not used their offset allocation.

PER CAPITA CONSUMPTION

In January of 2005, the Water Division announced that demand for the preceding year, 2004, was the lowest since 1988, and that the City's per capita water usage numbers were the lowest ever recorded. In 2004, with total demand at 10,379 AF and City utility demand at 9,537 AF, the figure for gallons per capita per day (GPCD) fell to 112. (Total production includes deliveries to Las Campanas and Santa Fe County, who are wholesale water customers.) The 2004 figure of 112 represents a decline of 7 GPCD from the previous year.

When the GPCD is calculated using only residential water use, and not all uses within the service area, the figure obtained is **52.5** gallons per person per day. However, due to the current water billing structure, certain residential water use is billed as commercial. For example, apartment complexes within the City may be classified as

either small or large commercial, and are therefore not included in the GPCD value for residential water use. The water billing system is currently being revised to identify multi-family residential customers (formerly commercial), which will make distinguishing commercial and residential use more accurate in the future.

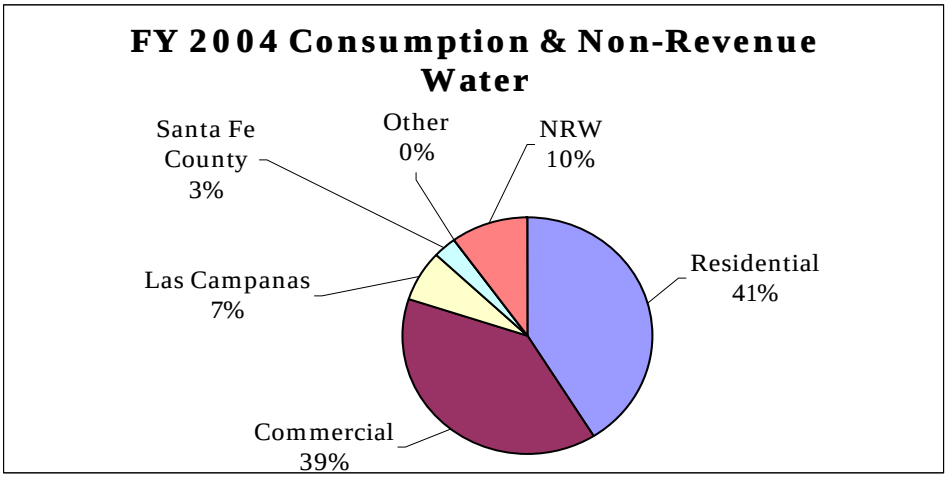


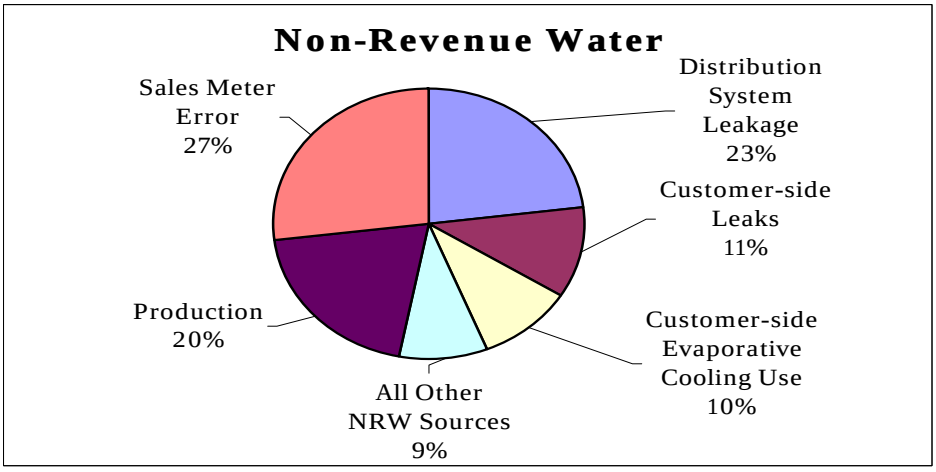
Utility Maintenance

NON-REVENUE WATER

The City Water Division contracted with an engineering firm to determine the City's percentage of non-revenue (or unaccounted-for) water. This is lost water as a result of several factors, including inaccurate meters and system leaks. The Office of the State Engineer reports that a water system is performing well if non-revenue water is approximately 10-15 percent, and 20 percent is considered reasonable. According to the recent study of the City's system, the City's non-revenue water is 9.8 percent.

The following graphs represent the City's non-revenue water in comparison to other deliveries and a further breakdown of our non-revenue water and where the causes lie. The largest source of non-revenue water comes from meter errors in sales.





Please note that "customer side leaks" and "customer-side evaporative cooling use" represent unmetered, unbilled apparent water losses. For further information on non-revenue water, please see the "Comprehensive Water Audit" (July 26, 2005) by GOFF Water Audits and Engineering.

TRANSMISSION AND DISTRIBUTION ACCOMPLISHMENTS

The Transmission and Distribution section of the Water Division is responsible with the upkeep of the City's water lines, valves, and meters. Throughout the year, this team handles emergencies and trouble-shooting of a centuries-old system, along with installation and maintenance on the newer sections of the City's water system. The following table is a summary of the accomplishments of the T&D team this quarter.

Action	2nd Quarter 2004	2nd Quarter 2005
	Number	
Water Main Breaks	65	60
Meter Installations	689	779
Meter Removals/Exchanges	923	1036
Annual Inspections of Fire Hydrants	757	350
Water Main Flushing	50 mile radius	61 mile radius
Water Mains Flushed	833	300
Total Emergency Dispatches	874	585
Water Mains Replaced	7	10
Leak Detection	75 mile radius	25 mile radius
Large Meters Tested/Repaired	117	77
Water Services (new, replaced, relocated)	213	191
Water Service Repairs	149	96